PATENT

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2834

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: **ALEX HORNG *ET AL.***

SERIAL NO.: **10/029,271** GROUP ART UNIT: **2834**

FILED: **December 28, 2001** EXAMINER: **H. Nguyen**

FOR: **Rotation Shaft Support Structure Of Motor** ATTY. REFERENCE: **HORN3084/EM/BEU**

THE COMMISSIONER FOR PATENTS
Washington, D.C. 20231

Sir:

Transmitted herewith is a communication/amendment in the above-identified application.

☐ Small entity status of this application under *37 CFR 1.9* and *1.27* has been established by a verified statement previously submitted.

☐ A verified statement to establish small entity status under *37 CFR 1.9* and *1.27* is enclosed.

☒ No additional fee is required.

The fee, if any, has been calculated as shown below:

Fee Basis	Number of Claims After Amendment	Highest Number Previously Paid For	Extra Claims	Small Entity	Full Fee
Total Claims		[1] -	[3] =	× $ 9 =	× $ 18 =
Independent Claims		[2] -	[3] =	× $ 40 =	× $ 80 =
☐ First Presentation of Proper Multiple Dependent Claim				+ $135 =	+ $270 =
			TOTAL		

[1] If less than 20 enter **20**. [2] If less than 3 enter **3**. [3] If less than 0 enter **0**.

☐ Please charge my **Deposit Account Number 02-0200** in the amount of **$** _____. A duplicate copy of this sheet is attached.

☐ A check in the amount of **$** _____ is attached.

☒ The Commissioner is hereby authorized to charge any additional fees associated with this communication, including fees due under *37 CFR 1.16* and *37 CFR 1.17* or credit any overpayment to **Deposit Account Number 02-0200**. A duplicate copy of this sheet is attached.

☒ Also enclosed is/are:

Appendix A - clean copy of amended claims
Appendix B - marked up copy of amended claims
Appendix C - clean copy of amended paragraphs
Appendix D - marked up copy of amended paragraphs

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DATE: January 2, 2003

Respectfully submitted,

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Response Under 37 CFR §1.116, After Final
EXPEDITED PROCEDURE
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Patent Application of:	)	
	)	
Alex HORNG *et al.*	)	**Group Art Unit: 2834**
	)	
Serial Number: 10/029,271	)	**Examiner: H. Nguyen**
	)	
Filed: December 28, 2001	)	

For: Rotation Shaft Support Structure Of Motor

REQUEST FOR RECONSIDERATION

Honorable Commissioner For Patents
Washington, D.C. 20231

Sir:

This paper is in response to the Official Action dated October 8, 2002.

Reconsideration of the application is respectfully requested for the following reasons:

1. Rejection of Claims 1 Under 35 USC §102(b) in view of U.S. Patent No. 3,961,864 (Papst)

This rejection is respectfully traversed on the grounds that the Papst patent fails to disclose or suggest a rotation shaft support structure comprising a single support member, as claimed, in which an annular wall of the support member faces a radial surface of the rotation shaft for supporting the rotation shaft, as claimed, and which is separate from a sealing member for the shaft tube.

According to the Examiner, the claimed "sealing member" corresponds to housing base 4 of Papst, the claimed "single support member" corresponds to element 90, the claimed "resting portion of the support member" corresponds to element 91, as shown in Fig. 5, and the claimed "annular wall" corresponds to the inner wall of shoulder 95. However, the alleged sealing member 4 does not provide any sealing function, while member 90 of Papst provides both a sealing and support function, while providing only axial and not radial support.

With respect to the radial support function, the inner wall of collar 96 of Papst fails to "*face a radial portion of the shaft* ***for supporting the rotation shaft***," as claimed. Instead, member 90 is actually a sealing member, with the rotation shaft of Papst being supported only by the surface 91, and not by the annular wall of shoulder 96. Nowhere does the Papst patent disclose that collar 96, which is made of the same *elastic* material as shoulder 95, provides a radial support function for the shaft itself. To the contrary, collar 96 is depicted as being spaced from shaft 20, and as facing only the tapered end of the shaft, against which it could not possibly provide a radial support function.

With respect to the sealing member, the Examiner will note that claim 1 specifically recites both a "seal member" and a "single support member." In particular, claim 1 recites:

> *A rotation shaft support structure of a motor, comprising:*
> *a shaft tube, having an inner wall provided with at least one bearing in which a rotation shaft may be rotated;*
> **a seal member**, *made of metallic material and securely combined with one end of the shaft tube;* and
> **a single support member**, *made of a wear resistant non-metallic material, mounted in the one end of the shaft tube, and supported by the seal member, the support member having a resting portion which has an integral periphery provided with an annular wall adapted to face a radial surface of the rotation shaft* **for supporting the rotation shaft while one end of the rotation shaft rests on the resting portion.**

According to Papst, this sealing function is provided not by housing base 4, but by the alleged support member 90. As explained in col. 5, lines 50 *et seq.* of the Papst patent, the purpose of element 90 is to provide both a seal between bearing sleeve 3 and the base of the motor housing, *and* to provide support for the bottom of the shaft. To accomplish this, a shoulder 95 of member 90 is positioned between bearing sleeve 3 and/or flange 5 and *elastically* deformed by tightening screw 16, thereby forming a seal and counteracting "the sagging of bottom 92 under the weight of the assembly."

Element 4 of Papst, on the other hand, is simply the base of the fan housing, which is not sealed, and which is not securely combined with the base of the shaft tube. The only sealing for

the end of the shaft of Papst is provided by sealing member 90. Element 4 of Papst cannot reasonably be interpreted as a seal because, unlike member 90, element 4 is not pressed between two elements to prevent ingress of air or liquid. Furthermore, element 4 of Papst cannot reasonably be interpreted as being securely combined with the base of the bearing member ("shaft tube"), because resilient sealing member 90 is positioned *between* the base of bearing member 3 and element 4. It is respectfully submitted that, in order to form a seal, there must be a passage that needs to be sealed. Member 90 seals the passage between the based of the bearing sleeve 3 and housing base 4. Housing base 4 of Papst performs no such sealing function. Therefore, the Papst patent cannot reasonably be interpreted as disclosing both a sealing member for the shaft base, *and* a single support member, as claimed, much less a single support member that supports the shaft in both an axial and a radial direction.

In addition to citing Fig. 3, the Examiner cites col. 5, lines 48-50 in support of his interpretation of housing member 4 as a "*sealing . . . member securely combined with one end of the shaft tube.*" However, col. 5, lines 48-50 of Papst simply states that:

> *This gap s constitutes the maximum permissible sag, since in such an extreme case, the extension 93 contacts, in the assembled condition, the metal plate 4 in the plane 94.*

This is hardly a teaching that element 4 of Papst serves as a sealing member, or that it is combined with the end of the bearing shaft in the manner claimed.

In summary, the claimed invention provides a sealing member and support member, the support member providing both radial and axial support, whereas Papst discloses a combined seal and support member, the support member providing only axial support, as indicated by the following table:

Papst	Claimed
1. Combined Sealing/Support Member 2. Axial Support Only	1. Separate Sealing and Support Members 2. Support Member Provides Both Axial and Radial Support

Because the Papst patent does not disclose all elements recited in claim 1, withdrawal of the rejection under 35 USC §102(b) is respectfully requested.

2. Rejection of Claims 1, 2, 4, and 7 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,517,480 (Muller) and 3,961,864 (Papst)

This rejection is respectfully traversed on the grounds that the Muller patent, like the Papst patent discussed above, fails to disclose or suggest a one piece sealing member that provides both axial and radial support, as claimed.

The support member of Muller is planar, and therefore cannot possibly include an annular wall of the type claimed, while the annular wall of Papst is part of a sealing member that provides only axial and not radial support for the shaft. As a result, it is respectfully submitted that neither the Muller patent nor the Papst patent, considered individually or in any reasonable combination, could possibly have suggested all of the features of the claimed invention, and withdrawal of the rejection of claims 1, 2, 4, and 7 under 35 USC §103(a) is respectfully requested.

3. Rejection of Claims 5 and 6 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,517,480 (Muller), 3,961,864 (Papst), and 5,982,064 (Umeda)

This rejection is respectfully traversed on the grounds that the Umeda patent, like the Muller and Papst patents, fails to disclose or suggest a one piece sealing member that provides both axial and radial support, as claimed. Instead, while Umeda's support member may have a cup or bowl shape, no part of it is "annular." As a result, withdrawal of the rejection of claims 5 and 6 under 35 USC §103(a) is respectfully requested.

4. Rejection of Claim 3 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,517,480 (Muller), 3,961,864 (Papst '864), and 3,777,191 (Papst '191)

This rejection is respectfully traversed on the grounds that the Papst '191 patent, like the Muller patent, discloses a planar support member without an integral annular wall, as claimed. Since Papst '864 also does not disclose the claimed annular radial-support wall, no combination

of the Muller, Papst '864, and Papst '191 patents, whether considered individually or in any reasonable combination, could have suggested the claimed invention, and withdrawal of the rejection of claim 3 under 35 USC §103(a) is respectfully requested.

Having thus overcome each of the rejections made in the Official Action, expedited passage of the application to issue is requested.

Respectfully submitted,

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Date: January 2, 2003

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